CLAIMS

1. Circuitry for scheduling data bursts in a optical burst-switched router, comprising:

an optical switch for routing optical information from an incoming optical transmission medium to one of a plurality of outgoing optical transmission media;

a delay buffer coupled to the optical switch for providing *n* different delays for delaying information between the incoming transmission medium and the outgoing transmission media;

scheduling circuitry associated with each outgoing medium, comprising *n+1* associative processors, each associative processor including circuitry for:

storing scheduling information for the associated outgoing optical transmission medium relative to a respective one of the *n* delays and for a zero delay, and

identifying available time periods relative to the respective delays in which a data burst may be scheduled.

2. The circuitry of claim 1 wherein the incoming optical transmission medium and the outgoing optical transmission media comprise optical fibers.

3. The circuitry of claim 1 wherein the associative processors identify unscheduled time periods.

4. The circuitry of claim 1 wherein the associative processors identify gaps between scheduled data bursts.

5. The circuitry of claim 4 and further comprising a second set of *n+1* associative processors, wherein the second set of associative processors identify unscheduled time periods.

6. The circuitry of claim 1 wherein said delay buffer comprises discrete delay lines each coupled a predetermined input and a predetermined output of said optical switch.

7. The circuitry of claim 1 wherein said delay buffer comprises a matrix of delay lines, where a desired delay line can be coupled between a selected input and selected output of said optical switch.

8. A method of scheduling data bursts in a optical burst-switched router that routes optical information through an optical switch from an incoming optical transmission medium to one of a plurality of outgoing optical transmission media either directly through the optical switch or via one of *n* different delays of a delay buffer, comprising the steps of;

storing scheduling information in *n+1* associative processors for the associated outgoing optical transmission medium relative to a respective one of the *n* delays and for a zero delay, and

concurrently identifying available time periods in each of said associative processors in which a data burst may be scheduled, such that available time periods associated with multiple delays can be simultaneously determined.

9. The method of claim 1 wherein the incoming optical transmission medium and the outgoing optical transmission media comprise optical fibers.

10. The method of claim 1 wherein said concurrently identifying step comprises the step of concurrently identifying unscheduled time periods in each of said associative processors.

11. The method of claim 1 wherein said concurrently identifying step comprises the step of concurrently identifying gaps between data bursts in each of said associative processors.

12. The method of claim 11 wherein said concurrently identifying step further comprises the step of concurrently identifying unscheduled time periods in each of said associative processors.

13. The method of claim 1 wherein said delay buffer comprises discrete delay lines each coupled a predetermined input and a predetermined output of said optical switch.

14. The method of claim 1 wherein said delay buffer comprises a matrix of delay lines, where a desired delay line can be coupled between a selected input and selected output of said optical switch.